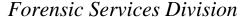
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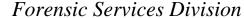
## Firearms/Toolmarks Standard Operating Procedures Manual Toolmark Tests and Casting Procedure

20.0	<b>TOOLMARK TEST</b>	STANDARDS	AND CASTING	METHODS
20.0	I OULIWANN I LOI	SIANDANDS	AND CASTING	

- **20.1** Scope: This method will detail how test toolmarks and castings are produced.
- 20.2 Precautions/Limitations: None
- 20.3 Related Information:
- 20.3.1 Microscopic Comparison Methods 16
- 20.3.2 Physical Examination and Classification of Tools and Toolmark Methods 19
- 20.3.3 Range of Conclusions Appendix 4
- 20.3.4 Verification of Casework Appendix 8
- 20.4 Instruments:
- 20.4.1 Stereomicroscope
- 20.4.2 Comparison Microscope
- 20.5. Reagents/Materials:
- 20.5.1 Accu-Trans Silicone Casting Material
- 20.5.2 Lead Sheets
- 20.5.3 Lead Wire
- 20.6 Hazards/Safety:
- **20.6.1** It is the responsibility of the firearm examiner to employ appropriate safety and health practices.
- 20.7 Reference Materials/Controls/Calibration Checks:
- **20.7.1** All controls and calibration checks shall be performed in strict accordance to those listed in the Performance Checks and Maintenance Appendix 7.
- 20.8. Procedures/Instructions:
- 20.8.1 Test Mark or Test Cut Method
- **20.8.1.1** The initial test media must be soft enough to prevent alterations of the tool's working surface. Lead sheet or lead wire is the preferred media.
- **20.8.1.2** The firearm examiner may use material submitted by the submitting agency which was collected as "test" material.
- 20.8.1.3 Subsequent tests might require the use of a harder test media to better reproduce

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the toolmarks.

- **20.8.1.4** A systematic approach should be used for the production of test toolmarks. Consideration should be given to:
  - · Areas of recent use on the tool in question.
  - Direction of use.
  - · Direction of force.
  - Indexing of test toolmarks

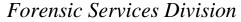
### 20.8.2 Casting Method

- Prepare the casting material as per manufacturer's specifications.
- Place the casting material over the toolmark to be cast.
- Allow the cast the appropriate amount of time to cure.
- · Gently lift the cast off the toolmark.
- A systematic approach should be used for the production of test toolmarks.
  Consideration should be given to:
  - Areas of recent use on the tool in question
  - Direction of use
  - Indexing of test standards/marks
- Consideration must be given to placing identifying marks as well as orientation marks on the back of the cast.
- **20.8.3** All test toolmarks, test cuts, or casts will be treated like test fires and shall follow the guidelines in the Test Fire Appendix 10.
  - The test box will be marked with the laboratory number, tool exhibit number, and "test toolmarks, test cuts, test marks, or casts" for ease of identification.
- **20.9. Records:** The firearm examiner shall document their findings in the form of handwritten notes, computer generated notes, photography, or by utilizing a worksheet.
- **20.10 Interpretations of Results:** None.
- **20.11 Report Writing:** Most toolmark report writing can be found in the Range of Conclusions Appendix 4.

#### 20.12 References:

Association of Firearms and Toolmark Examiners Glossary, 5<sup>th</sup> Edition, 2007.

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# Firearms/Toolmarks Standard Operating Procedures Manual Toolmark Tests and Casting Procedure

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